



'Regional Master Class in Plant Biosecurity, Indonesia' (Salatiga, February 2019)

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AUTHOR

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1. Executive Summary

Following a successful International Master Class (IMC) sponsored by The Crawford Fund and The Plant Biosecurity Cooperative Research Centre (PBCRC), held in Denpasar, Bali, in January 2018 a number of proposals was received to mount Regional Master Classes (RMC). Whereas the IMC had attracted Participants from across the archipelago, the RMC concept was to facilitate participation by taking Master Classes to the regions, focussing on specific interests in biosecurity while avoiding considerable costs in transport and accommodation. The Crawford Fund agreed to test this concept, with the support of the Foundation and with valuable contributions from several other agencies.

21 Participants, primarily from Java, gathered in Salatiga for the first RMC held from 10 to 16 February 2019. The program comprised a mix of presentations by Indonesian and international speakers; workshops and exercises; development of four projects for which resources are being sought, and the preparation of brief papers based on the Participants' own biosecurity experiences. These papers are in preparation for publication by the Foundation.

Since the Participants represented diverse public and private sectors good progress was made towards achieving the projects' objective of creating a new network of biosecurity-aware individuals and organisations. This network will link with the existing network developed by bilateral investments by the PBCRC in collaboration with Indonesian colleagues (2015-present). While the bilateral relationship will be enhanced, the involvement of CABI, CEBRA and The Crawford Fund will strengthen one of the Foundation's objective of raising its international profile.

2. Introduction

The Cooperative Research Centre for National Plant Biosecurity (CRCNPB) commenced bilateral engagement with Indonesia in 2006 through a year-long pilot study. Initial activities involved seed funding 20 small projects to identify topics for investigation with key partners who remain involved to this day.

The pilot year presaged the funding of a 5 year project starting in 2007 and launched by an *International Biosecurity Summit*, held in Bali. National policy personnel, the Director General of Higher Education and international academic experts, along with biosecurity experts from the two countries took part. Priorities from the Summit were formulated into a five-year agenda spear-headed by the newly established Australia Indonesia Biosecurity Community Management Project (AusIndoBIOCOM), www.ausindobiocom.net (PBCRC legacy website).

The strategic plan for AusIndoBIOCOM began with the Vision of '*Researching and applying ways of managing change in major issues such as biosecurity at international, national, regional and community level in order to alleviate poverty and related major social problems*'.

By the time the CRCNPB finished its term in 2012 the major outcomes of AusIndoBIOCOM included: 12 Higher Degree Research student completions supported in the field of plant biosecurity; a book *Managing Biosecurity Across Borders* (Springer 2011), containing chapters by

11 authors on all aspects of plant biosecurity impacting on effective border management, and an enduring network with a commitment to promoting biosecurity to the benefit of Indonesia and Australia.

The Plant Biosecurity Cooperative Research Centre (PBCRC – 2012-2018) re-evaluated the Indonesia linkages and commenced a program of engagement which continues to the present.

Following an exploratory workshop in March 2015, a second *International Biosecurity Summit* was held in Denpasar in May 2015. The Australian and Indonesian governments were represented at high levels and maintain their engagement. A major contribution was made to the preparation of a PBCRC Thought Leadership Paper (TLP) “*Opportunities and Benefits for Collaboration on Indonesian Plant Biosecurity: A Bilateral Approach*”, representing a rigorous analysis of biosecurity needs nationally, and how best these needs could operate in a bilateral framework. Importantly, a proposal to consolidate existing linkages led to an Agreement to form a Bilateral Plant Biosecurity Initiative (BPBI), formalised in April 2016.

Under BPBI’s auspices four research projects were established, each hosted by one of the BPBI’s core university partners www.pbcrc.com.au (legacy website). The four projects were completed before the close of the PBCRC on June 30 2018. The success of this venture encouraged BPBI and other collaborators to support the establishment of an Indonesian Biosecurity Foundation (IBF), formalised in October 2017 and with interests in common with those of the Australian Plant Biosecurity Science Foundation (APBSF).

One early national outcome of IBF was the co-hosting of a Workshop, held in Bogor in September 2018, in conjunction with LIPI (Indonesian Institute of Sciences), CABI, the Crawford Fund and APBSF. Its chief outcome was a decision to promote the unification of Indonesia’s disparate ‘biosecurity’ policies and regulations under the single banner BIOSECURITY and, through various agencies, to promote strongly the community awareness of a unified notion of biosecurity.

In January 2018 a Crawford Fund Master Class, co-funded by the PBCRC and supported by CABI was held in Denpasar when 26 participants from across the Indonesian archipelago met for two weeks of presentations and discussions with Indonesian and Australian biosecurity workers. Previously unknown to each other, following this experience the participants have created an enduring and very active network which is further expanding the compass of BPBI and IBF. Collected papers by participants ‘*Aspects of Biosecurity in Indonesia*’ were published by PBCRC in January 2018.

3. Aim

Much has been achieved over the period of bilateral engagement through modest CRCNPB/PBCRC investment in capacity building and raising awareness of the significance of biosecurity to the two countries. The importance of Indonesia as a near neighbour and a key trading partner argues for continued bilateral involvement, not least with the signing of the Indonesia-Australia Comprehensive

Economic Partnership Agreement (04 March 2019) in which agriculture and education feature, strongly.

Given the advent of IBF (2017) and APBSF (2018) and the congruence of their objectives, **the aim** of this project is, through support for Regional Master Classes, to further enhance Australian connections with biosecurity networks in Indonesia. In turn, such enhancement will contribute to APBSF's developing international interests and profile.

4. Methods/Process

Universitas Kristen Satya Wacana (UKSW), Salatiga has been involved in CRCPB, PBCRC and BPBI activities since 2006 and is very actively participating in developing the Indonesian Biosecurity Foundation. The RMC concept is based on co-funding. UKSW expressed willingness to cover local costs of a 'pilot' RMC, with The Crawford Fund and APBSF providing support for international presenters and organisers.

21 Participants, primarily from Java, gathered in Salatiga for this inaugural RMC held from 10 to 16 February 2019. The Program (Appendix 1) comprised a mix of presentations by Indonesian and international speakers (Appendix 2); workshops and exercises, and development of four projects for which resources are being sought.

5. Achievements, Impacts and Outcomes

Participants were required to present a 'case study' and, subsequently, have prepared brief papers for formal publication, following the model developed by PBCRC for the International Master Class papers (January 2018).

Feedback from Participants is attached (Appendix 3). The principal predicted **output** of the RMC was '*a new network of biosecurity-aware individuals and organisation for the region*'. The feedback strongly indicates that success has been achieved, albeit follow-up activities will be required.

The desired **outcome** of the RMC was '*enhanced community awareness of biosecurity-related issues*'. Again, the feedback supports progress towards achievement of this objective. Further, UKSW is leading a bid to the Australia-Indonesia Institute for a project titled '*Empowering women in farmer groups in Central Java: a model*', addressing an area of neglect – the role of women in agriculture and biosecurity. APBSF is party to this bid.

A vital outcome of the Regional Master Class was to bring together under the umbrella of the Indonesian Biosecurity Foundation (IBF) a large number of stakeholders from across the Indonesian archipelago, and to engage them in furthering the biosecurity cause from policy to grassroots levels. The IBF will continue to provide an on-going means of maintaining approaches to bilateral issues in biosecurity.

6. Discussion and Conclusion

Testing of the RMC concept was validated by the Salatiga experience. Cost-sharing by a host university had been a critical plank in the RMC platform and UKSW, as host, performed above expectation. Expenditure by from The Crawford Fund and APBSF was within budget. CABI's contribution, supported by Chief Executive Officer, Dr Trevor Nicholls, and delivered by Dr Sivapragasam, Regional Director South East Asia, was invaluable. Dr Siva kindly prepared a commentary on the RMC which is at Appendix 4.

The 21 participants in the RMC have now been added to the network created through bilateral linkages established, largely, through the efforts of the predecessors of APBSF. Requests to mount further RMCs are being received. Critical determinants in supporting these will be the willingness of a host university to underwrite local costs and the submission of a topic important in a regional context but contributing to the growing understanding of biosecurity risks and responses across Indonesia and Australia.

7. Recommendations

1. The continued growth of the bilateral relationship with Indonesia, especially pertinent in context of signing of the recent Indonesia-Australia Comprehensive Economic Partnership Agreement be noted and publicised through APBSF communication channels.
2. The Foundation note that provision has been made for a second RMC under project PBSF006, location to be finalised.
3. The Foundation note that two applications related to the RMC and to previous bilateral engagement are being prepared for consideration by the Australia-Indonesia Institute, representing opportunities for APBSF to leverage off its inputs while raising the international profile.

8. Plain English Summary

Following a successful International Master Class (IMC) sponsored by The Crawford Fund and The Plant Biosecurity Cooperative Research Centre (PBCRC), held in Denpasar, Bali, in January 2018 a number of proposals was received to mount Regional Master Classes (RMC). A novel concept, a RMC would be based with a local host, typically, a university; would focus on specific interests in biosecurity in defined regions of the archipelago, and would providing expert training and network development in a cost-effective manner.

Hosted by Universitas Kristen Sacaya Watana (Salatiga) the inaugural RMC was supported by The Crawford Fund, the Centre for Agriculture and Biosciences International (CABI), the Centre of Excellence for Biosecurity Risk Analysis (CEBRA) and the APBSF. 21 Participants, primarily from Java, and representing a diverse range of public and private sector interests, gathered in Salatiga 10 to 16 February. The Program comprised a mix of presentations by Indonesian and international speakers; workshops and exercises; development of four projects for which resources are being sought, and the preparation of brief papers based on the Participants' own biosecurity experiences. These papers may be published by the Foundation.

Since the Participants represented diverse public and private sectors good progress was made towards achieving the project's objective of creating a new cohort of biosecurity-aware individuals and organisations. This network will link with the existing network developed by bilateral investments by the PBCRC in collaboration with Indonesian colleagues (2015-present). While the bilateral relationship will be enhanced, the involvement of CABI, CEBRA and The Crawford Fund will strengthen the Foundation's objective of raising its international profile.

9. Appendices, References, Publications

Appendix 1. Crawford Fund Regional Master Class – Program

Appendix 2. List of Presenters

Appendix 3. Feedback Survey

Appendix 4. Review of week's activities by Dr Siva, CABI

10. Acknowledgements

The track record of UKSW in bilateral biosecurity activities was enhanced by its outstanding performance as host of this inaugural Regional Master Class. With support from Rector Dr Neil Rupidara, Dr Suryasatria Trihandaru, Dr Titi Susilowati and Ibu Linda Susilowati worked, tirelessly, with colleagues through the planning, execution and reporting phases. All Presenters (Appendix 2) made significant contributions. Special thanks are due to Dr Jerry Tambun (Chairman, IBF) and Dr. Drs I Made Sukamerta (Rector, UNMAS) longterm supporters of bilateral activities.

Owing to indisposition the author was unable to attend the RMC in person. Professor Ian Falk willingly assumed many extra duties while fulfilling his role as a presenter and as a link to IBF. He was assisted by Dr Siva who assumed a coordinating role, as evidenced by his review (Appendix 4). As at the IMC held in Bali (2018) Dr Susie Hester (CEBRA) provided complementary disciplinary expertise.

Since 1992, The Crawford Fund has supported more than 50 Master Classes in 14 countries across Africa, the Asia-Pacific and Australia. Following the successful IMC held in Denpasar in 2018 Dr Colin Chartres (Chief Executive Officer) and Professor Shaun Coffey (Director of Training and Master Classes) approved this test of a shorter, focussed regional approach. The APBSF joined The Crawford Fund in providing financial support to complement that of UKSW.

Finally, the Participants contributed ideas and input which will further enhance the bilateral activities and network which is helping to promote biosecurity as a major national issue for Indonesia, and an issue which impacts internationally, not least on its near neighbours.

Sincere appreciation and thanks for this collaborative effort are extended to all of the above.

“Biosecurity and Biodiversity:

Keys to Promoting Local Food for Food Security and Food Sovereignty”

| Time | Event |
|--|---|
| Arrival - 10 February 2019 (Sunday) | |
| 14.00 - | Participants check in at the hotel |
| Day 1 – 11 February 2019 (Monday) | |
| 08.00 – 09.00 | Registration & Briefing about the program |
| 09.00 – 09.30 | Opening Ceremony: Rector UKSW |
| 09:30 – 10:30 | Orientation of Master Class and discussion of desired outcomes led by Professor Ian Falk and Dr Titi Susilowati |
| 10:30 – 11:00 | Morning refreshments |
| 11:00 – 12:30 | “What is biosecurity?” : Interactive discussion with the participants led by Professor Ian Falk and Dr. Susie Hester |
| 12:30 – 13:30 | Lunch (and networking) |
| 13.30 – 14.30 | “Bilateral Plant Biosecurity Initiative BPBI: Developing the Indonesian Biosecurity Foundation IBF” : led by Professor Ian Falk |
| 14:30 – 14:45 | Afternoon Refreshments |
| 14.45 – 15.30 | Participants’ Presentations |
| 15.30 – 16:30 | "Biosecurity Policy Development in Indonesia" led by Theo Litaay, Ph.D. |
| 16.30 – 17:30 | Concurrent sessions (3): responses to biosecurity issues raised from the opening addresses and Participant presentations moderated by Ms. Dina Banjarnahor, M.Sc. |

| Time | Event |
|---|--|
| Day 2 – 12 February 2019 (Tuesday) | |
| 08.30 – 09.00 | Review previous day’s activities led by Professor Ian Falk |
| 09.00 – 10.30 | “Biosecurity Risk” by Dr. Susie Hester |
| 10.30 - 11.00 | Morning Tea |
| 11:00-12:30 | “Biosecurity Response” by Dr. Susie Hester |
| 12.30 – 14.00 | Lunch (and networking) |
| 14.00 – 15.30 | Simulation Exercises led by Dr. Susie Hester |
| 15.30 – 16.00 | Afternoon refreshments |
| 16.00 - 17.00 | Group Exercises concluded |
| Day 3 – 13 February 2019 (Wednesday) | |
| 08.30 – 09.00 | Review previous day’s activities led by Dr. Susie Hester |
| 09:00 – 10:30 | “Biosecurity, Food Security and Food Sovereignty” by Dr. Sivapragasam |
| 10:30 - 11:00 | Morning Refreshments |
| 11:00 – 12:30 | “Trade and Market Access” by Dr. Sivapragasam |
| 12.30 – 14.00 | Lunch (and networking) |
| 14.00 – 15.30 | Group Exercises led by Dr. Sivapragasam |
| 15.30 – 16.00 | Afternoon Refreshments |
| 16.00 – 17.00 | Simulation Exercises concluded |
| Day 4 – 14 February 2019 (Thursday) | |
| 08.30 – 09.00 | Review previous day’s activities led by Dr. Sivapragasam |
| 09.00 – 10.30 | “Community involvement to strengthen food security in Indonesia” by Mr. Bahruddin |

| Time | Event |
|--|--|
| 10:30 – 11:00 | Morning Refreshments |
| 11:00 – 12:30 | "Education, Training, and Community Awareness: Capacity Building (Case Study in Subak Bali)" by Dr. Eka Martiningsih |
| 12:30 – 14:00 | Lunch |
| 14:00 - 15:15 | "Local food to contribute to food security" by Dr. Wiske Rostinsulu |
| 15:15 - 15:45 | Afternoon Refreshments |
| 15:45 - 17:00 | "Local foods for food security and food sovereignty" by Dra. Lusiawati Dewi, M.Sc. |
| 17:00 – 17:45 | Discussion groups (3) led by Dr. Yohanes Martono, M.Sc. |
| Day 5 – 15 February 2019 (Friday) | |
| 08:30 – 09:00 | Review previous day's activities led by Dr. Titi Susilowati |
| 09:00 – 10:30 | "What Happens When Things Go Wrong?" by Dr. Sivapragasam |
| 10:30 – 11:00 | Morning Refreshments |
| 11:00 – 12:30 | "The Value to Universities and Other Institutions of Collaborating with IBF" by Dr.Suryasatria Trihandaru and Dr. Drs. I Made Sukamerta, M.Pd |
| 12:30 – 14:00 | Lunch / prayers |
| 14:00 – 15:30 | Future contributions to biosecurity and biodiversity by Participants, led by Dina Banjarnahor, M.Sc. |
| 15:30 - 16:00 | Afternoon Refreshments |
| 16.00 – 17:30 | Feedback: Consideration of papers to be produced from Master Class led by Prof. Ian Falk |
| Day 6 - 16 February 2019 (Saturday) | |
| 08:30 – 09:00 | Review of the week's activities led by Dr. Sivapragasam |
| 9:00 – 10:30 | "Where to next?" led by Dr Titi Susilowati, Prof. Ian Falk and Dr. Sivapragasam |
| 10:30 – 11:00 | Morning Refreshments |

| Time | Event |
|---------------|---|
| 11:00 – 12:00 | Closing Ceremony and presentation of Master Class Certificates |
| 12:00 | Lunch and networking |
| | Participants departure |

Appendix 2. List of Presenters

Pak. Baharuddin, founder of Yayasan Qaryah Thayyibah (Serikat Paguyuban Petani/Farmer association), Kalibening, Salatiga. There are about 140 farmer groups under Qaryah Thayyibah's coordination.

Dra. Lusiawati Dewi, M.Sc. is a Senior Lecturer in Biology, Universitas Kristen Satya Wacana, Salatiga with research interests in local food innovation.

Professor Ian Falk, formerly Chair of Rural and Remote Education, Charles Darwin University (CDU), resident in Denpasar and associated with UKSW, UNMAS and UNANDA universities in Indonesia. Research interests and more than 200 refereed publications are in the areas of sociology and rural sociology; regional and community development, community capacity building and social capital.

Dr. Susie Hester, Senior Research Fellow, Business School, University of New England, Armidale, NSW; Deputy Director, Centre of Excellence for Biosecurity Risk Analysis (CEBRA). Research interests: bioeconomic modelling to solve issues related to pest and disease management; understanding the value of passive surveillance in biosecurity; tools for post-border surveillance of pests and diseases; impact assessment of biosecurity investments.

Dr Theo Litaay, is Senior Policy Advisor in The Executive Office of The President, Republic of Indonesia. He is also a Senior Lecturer in Law, Universitas Kristen Satya Wacana, Salatiga with research interests in cross border issues, Indigenous and Socio-legal Studies.

Professor John Lovett, was unable to attend the RMC in Salatiga, due to illness but played the major role in organisation of the international component and in ensuring RMC deliverables are met, including co-editing the book of papers resulting. Foundation Chairman, Plant Biosecurity Cooperative Research Centre, Australia. Formerly Managing Director, Grains Research and Development Corporation.

Dr. Eka Martiningsih is the Secretary of Indonesian Biosecurity Foundation. She is also Senior Lecturer in Agriculture, Universitas Mahasaraswati, Bali with research interests in local knowledge and gender balance in agricultural system.

Dr. Wiske Rotinsulu is Senior Lecturer in Agriculture and Head of International Affairs at Sam Ratulangi University, Manado, Sulawesi. In addition to biosecurity and biodiversity, her academic interests include natural resources management; environmental impact assessment, and geographical information systems (GIS) and remote sensing in resource management.

Dr. Sivapragasam, Regional Director of CABI, Malaysia. Dr. Siva started his career at the Malaysian Agricultural Research and Development Institute (MARDI) in June 1978 as a Research Officer, where he specialized in entomology and biological control of tropical insect pests. From October 2010 He joined CABI as a senior scientist. In the last six years, he has worked in almost all the Southeast Asian countries for CABI projects and its Plantwise programme. He has many years' experience in tropical pest management and related areas.

Dr. Drs. I Made Sukamerta, M.Pd is Rector of Universitas Mahasaraswati, Denpasar, Bali. He has worked with BPBI on many projects with his expertise on cultural studies.

Dr. Suryasatriya Trihandaru is the vice chairman of the Indonesian Biosecurity Foundation (IBF). He is also Pro-Vice Chancellor of Research at Universitas Kristen Satya Wacana, Salatiga.

Appendix 3. Feedback survey. 18 of 21 participants completed the *pro forma*, supplied.

1. What do you think is the SINGLE most important thing you have learned from the Master Class?
 - *The inseparable concepts of biodiversity, biosecurity, and food security.*
 - *How to value local commodities and cultural heritage as part of biosecurity and biodiversity.*
 - *The need to focus on community awareness to deliver better biosecurity and biodiversity outcomes.*
2. What were the most important aspects of the Master Class Activities for you?
 - *All materials were provided by presenters who are very competent in their field.*
 - *The balance of activities was good – we were involved. Discussion groups (41,2%), presentations/lecturers (23,5%), practical sessions (23,5%)*
3. Was anything you expected missing from the Master Class? If so what would you have liked to have been included?
 - *Field visit – 12 respondees made this nomination.*
4. How has your understanding of biosecurity principles and practices changed as a result of the Master Class?
 - *Significantly, especially that biosecurity is more than just understanding pests and diseases.*
 - *Sharing opinion, discussion, and expert's experience about real cases that happened in many different areas and sectors enlarged our experience.*
5. Has the range of your professional contacts changed as a result of this Master Class? If so please give examples of what has happened.
 - *Absolutely, we met different people from many different sectors and backgrounds including all the speakers. 14 respondees were of this view – more 'junior' respondents felt that this would take time.*
6. How do you propose to pass on the information you have learned to colleagues in your home institution?
 - *Report, presentation, discussion and publish an article in home institution's magazine.*
 - *Community workshops will be useful.*
7. Will it be difficult to implement the knowledge you have learned from the Master Class in your home institution? If so, please provide details.
 - *General view: No!!*
 - *However, some respondees felt that it may be more difficult to engage top management than farmers.*
8. What should be done now to reinforce the activities of this Master Class?
 - *Offer more RMC.*
 - *Regular meeting of RMC network, sharing information, building projects together.*
9. Were the accommodation, meals and general arrangements appropriate? If not, please provide details.
 - *Very appropriate.*
 - *Better adjustment for Moslem prayer time.*
10. If we ran the Master Class again, what changes would you recommend?
 - *Field trip (see 3, above).*
 - *Add more 'sustainable agriculture' content.*
 - *Include a little more 'ice-breaking' time.*
11. Are there any other comments you would like to make?
 - *"It was implemented so great and has major contribution to Indonesian people".*
 - *The network that we get and build from RMC is priceless.*
 - *RMC need to be implemented in many regions in Indonesia.*

Appendix 4. Review of week's activities by Dr Siva, CABI

“Biosecurity and biodiversity: Keys to Promoting Local Food for Food Security and Food Sovereignty”

Introduction A Regional Master Class (RMC) in Plant Biosecurity was conducted in Salatiga, Central Java, Indonesia from 10-16 February 2019. It was hosted by Universitas Kristen Satya Wacana (UKSW) Salatiga, and supported by the Indonesian Biosecurity Foundation (IBF). The theme was *Biosecurity and Biodiversity: Keys to promoting Local food for Food Security and Food Sovereignty*, attracted 21 participants coming from various academic and professional backgrounds.

The objective of the RMC was to ensure that participants had the bigger picture on food security given the local and regional perspective of the issues. Classes consist of lectures, discussion sessions, video presentations, proposal development and group exercises on various biosecurity scenarios. Skills covered include those relevant to the following areas: 1. Market access, biosecurity and food policy; 2. Sustaining agriculture's natural resource base; 3. Global change and risk assessment, and 4. Science communication and information technology.

Day 1:

In the introductory orientation session, participants were given a backdrop on the work to date on biosecurity and food security in Indonesia and their potential possible outcomes. For the first time, participants were also exposed to the issues of food sovereignty. In addition, a presentation was given on the Bilateral Plant Biosecurity Initiative (BPBI): Developing the Indonesian Biosecurity Foundation (IBF) which highlighted the key features of IBF, its objectives and activities.

Participants were informed that biosecurity, as defined by FAO in 2010, is the strategic and integrated approach to analysing and managing relevant risks to human, animal, and plant life and health and the associated risks for the environment. Four strategies were underscored for biosecurity. These were: (1) early warning detection and response, (2) quarantine, trade, and market access, (3) biodiversity and environment, (4) education, training, community awareness. The 4 strategies were discussed broadly with the participants, and based on their topics of interests (trade, customs, government, etc.), each participant was requested to provide a brief proposal on an issue that needed to be fixed. Overall, this exercise provided participants the opportunity to develop a strategy or strategies on a biosecurity-related issue raised at the earlier introductory session either at the local, national, and international levels.

For encouraging group discussions and dynamics, participants were divided to 4 groups. The 4 groups were: Group 1: local food and biodiversity; Group 2: food security, food sovereignty and food safety; Group 3 (Cash crops, food crops, culture and market access) and Group 4 (entrepreneurship, food management, farming systems, and the role of government). Each group deliberated on various topics and reconciled with several lessons and challenges related to biosecurity and biodiversity in Indonesia which were noted for further action. Generally, the three most important things on biosecurity emerged from the group exercise. These were the need for Education, Training, Community Awareness. There is also a need for linking the work undertaken at the various levels to the regional government. It was noted that food security is the goal and biosecurity is how you get to it.

Day 2: covered topics on biosecurity risk and biosecurity response followed by simulation exercises. Several terminologies were discussed such as Biosecurity risk, Hazard, Risk = likelihood consequences etc. Other topics included Undertaking risk analysis; Decision about border biosecurity; Estimating risk via Bayesian network analysis; Simulation modelling, Expert judgement and decision trees. The probability topics included simulation and Scenario. Two categories of decisions were noted: Decision about entry of potentially invasion species (Pre border/ border biosecurity Decision of Control) and on decision of species after they arrived (Post border biosecurity).

Overall participants learnt about the concept of risk, probability risk management, risk assessment; the economic perspective about biosecurity, risk assessment and how it can be calculated for future impact; also predict about the benefits, biosecurity response and risk, and discounting analysis and different way to analysis businesses. It was emphasised that biosecurity is the goal and biodiversity is the tool.

Day 3: Two presentations covered the questions of Biosecurity, food security, and food sovereignty and their consequences on Trade and Market Access. The first presentation emphasised the need for a biosecurity plan and the second on Trade and market access. It was noted that the Biosecurity Plan is a strategic one based on prevention rather than cure. Prevention is done at a much lower cost. It was noted that the breach in biosecurity can be deliberate (mainly human related) or accidental. There are also other mechanisms that cause biosecurity concerns such as unusual climates, migratory birds and farming techniques. Food security is becoming a major concern with climate change and political turbulence. The importance of food sovereignty was highlighted. Several principles were noted; (i) Food for people, not for company; (ii) Value food providers; (iii) Localize food systems; (iv) Make decisions locally; (v) Build knowledge and skills; (vi) Work with nature. Projects and videos were presented to highlight several aspects of biosecurity, food security, the impact of invasive species, trade and market access. This was followed by group exercises and presentations on potential biosecurity problems in smallholder farms due to pests and diseases.

Day 4: there were three presentations which focused on: (i) Education, Training and Community Awareness for capacity building in Subak Bali which highlighted the four elements of nature and water conservation; (ii) How indigenous plants can contribute to food security using Dalugha as an example and (iii) The innovative development of Local foods for food security and food sovereignty using tempe as an example.

Day 5: there were three presentations viz, (i) 'What happens when things go wrong' which examined the consequences of biosecurity lapse using the potential problem of the invasive Fall Armyworm as an example; (ii) the value of Universities such as Mahasaraswati, Bali and UKSW, Salatiga and other institutions collaborating with IBF and (iii) Community involvement to strengthen food security in Indonesia with Pak Bahruddin, Qaryah Thayyibah (QT).



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